



SEQUENCE LISTING

<110> Houghton, Michael
Choo, Oui-Lim
Kuo, George

<120> Hepatitis C virus protease

<130> 223002010004

<140> 09/884,455

<141> 2001-06-18

<150> 09/253,675

<151> 1999-02-18

<150> 08/709,177

<151> 1996-09-06

<150> 08/440,548

<151> 1995-05-12

<150> 08/350,884

<151> 1994-12-06

<150> 07/680,296

<151> 1991-04-04

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<151> 1990-04-04

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<170> FastSEQ for Windows Version 4.0

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Arg Gly Leu Leu Gly Cys Ile Ile Thr Ser Leu Thr Gly Arg Asp Lys

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Asn	Gln	Val	Glu	Gly	Glu	Val	Gln	Ile	Val	Ser	Thr	Ala	Ala	Gln	Thr		
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Phe	Leu	Ala	Thr	Cys	Ile	Asn	Gly	Val	Cys	Trp	Thr	Val	Tyr	His	Gly		
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Ala	Gly	Thr	Arg	Thr	Ile	Ala	Ser	Pro	Lys	Gly	Pro	Val	Ile	Gln	Met		
				85					90					95			
Tyr	Thr	Asn	Val	Asp	Gln	Asp	Leu	Val	Gly	Trp	Pro	Ala	Ser	Gln	Gly		
			100					105					110				
Thr	Arg	Ser	Leu	Thr	Pro	Cys	Thr	Cys	Gly	Ser	Ser	Asp	Leu	Tyr	Leu		
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Val	Thr	Arg	His	Ala	Asp	Val	Ile	Pro	Val	Arg	Arg	Arg	Gly	Asp	Ser		
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Arg	Gly	Ser	Leu	Leu	Ser	Pro	Arg	Pro	Ile	Ser	Tyr	Leu	Lys	Gly	Ser		
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Ser	Gly	Gly	Pro	Leu	Leu	Cys	Pro	Ala	Gly	His	Ala	Val	Gly	Ile	Phe		
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Arg	Ala	Ala	Val	Cys	Thr	Arg	Gly	Val	Ala	Lys	Ala	Val	Asp	Phe	Ile		
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<213> Yellow Fever virus

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<223> Yellow Fever virus protease

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Phe His Thr Met Trp His Val Thr Arg

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Pro Ser Gly Thr Ser Gly Ser Pro Ile

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 <213> Bovine

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<220>
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Thr Ala Ala His Cys
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Asn Asn Asp Ile Thr Leu Leu
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<213> porcine

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Thr Ala Ala His Cys
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<213> porcine

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Gly Tyr Asp Ile Ala Leu Leu
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<223> Elastase protease

<400> 31

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<210> 32

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<213> Hepatitis C virus

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Thr Val Tyr His Gly
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Ser Ser Asp Leu Tyr Leu Val
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			20					25					30		
Glu	Gly	Ile	Pro	Pro	Asp	Gln	Gln	Arg	Leu	Ile	Phe	Ala	Gly	Lys	Gln
		35					40					45			
Leu	Glu	Asp	Gly	Arg	Thr	Leu	Ser	Asp	Tyr	Asn	Ile	Gln	Lys	Glu	Ser
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Thr	Leu	His	Leu	Val	Leu	Arg	Leu	Arg	Gly	Gly					
65					70				75						

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<400> 37
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<400> 38
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aatttgaggaa ttccataatt aattaag

27

<210> 56

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<213> Hepatitis C virus

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Leu Lys Gly Ser Ser Gly Gly Pro Leu
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20 25 30
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Ala	Asp	Val	Ile	Pro	Val	Arg	Arg	Arg	Gly	Asp	Ser	Arg	Gly	Ser	Leu
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Leu	Ser	Pro	Arg	Pro	Ile	Ser	Tyr	Leu	Lys	Gly	Ser	Ser	Gly	Gly	Pro
	210					215					220				
Leu	Leu	Cys	Pro	Ala	Gly	His	Ala	Val	Gly	Ile	Phe	Arg	Ala	Ala	Val
225					230					235					240
Cys	Thr	Arg	Gly	Val	Ala	Lys	Ala	Val	Asp	Phe	Ile	Pro	Val	Glu	Asn
				245					250					255	
Leu	Glu	Thr	Thr	Met	Arg	Ser	Pro	Val	Phe	Thr	Asp	Asn	Ser	Ser	Pro
			260					265					270		
Pro	Val	Val	Pro	Gln	Ser	Phe	Gln	Val	Ala	His	Leu	His	Ala	Pro	Thr
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Gln	Met	Glu	Thr	Lys	Leu	Ile	Thr	Trp	Gly	Ala	Asp	Thr	Ala	Ala	Cys
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Gly	Asp	Ile	Ile	Asn	Gly	Leu	Pro	Val	Ser	Ala	Arg	Arg	Gly	Arg	Glu
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Ile	Leu	Leu	Gly	Pro	Ala	Asp	Gly	Met	Val	Ser	Lys	Gly	Trp	Arg	Leu
65					70					75					80
Leu	Ala	Pro	Ile	Thr	Ala	Tyr	Ala	Gln	Gln	Thr	Arg	Gly	Leu	Leu	Gly
				85				90						95	
Cys	Ile	Ile	Thr	Ser	Leu	Thr	Gly	Arg	Asp	Lys	Asn	Gln	Val	Glu	Gly
			100					105					110		
Glu	Val	Gln	Ile	Val	Ser	Thr	Ala	Ala	Gln	Thr	Phe	Leu	Ala	Thr	Cys
		115					120					125			
Ile	Ile	Asn	Gly	Val	Cys	Trp	Thr	Val	Tyr	His	Gly	Ala	Gly	Thr	Arg
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Thr	Ile	Ala	Ser	Pro	Lys	Gly	Pro	Val	Ile	Gln	Met	Tyr	Thr	Asn	Val
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Asp	Gln	Asp	Leu	Val	Gly	Trp	Pro	Ala	Ser	Gln	Gly	Thr	Arg	Ser	Leu
			165						170					175	
Thr	Pro	Cys	Thr	Cys	Gly	Ser	Ser	Asp	Leu	Tyr	Leu	Val	Thr	Arg	His
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Ala	Asp	Val	Ile	Pro	Val	Arg									
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Gln	Met	Glu	Thr	Lys	Leu	Ile	Thr	Trp	Gly	Ala	Asp	Thr	Ala	Ala	Cys
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Gly	Asp	Ile	Ile	Asn	Gly	Leu	Pro	Val	Ser	Ala	Arg	Arg	Gly	Arg	Glu
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Leu	Ala	Pro	Ile	Thr	Ala	Tyr	Ala	Gln	Gln	Thr	Arg	Gly	Leu	Leu	Gly
				85				90						95	
Cys	Ile	Ile	Thr	Ser	Leu	Thr	Gly	Arg	Asp	Lys	Asn	Gln	Val	Glu	Gly
			100					105					110		
Glu	Val	Gln	Ile	Val	Ser	Thr	Ala	Ala	Gln	Thr	Phe	Leu	Ala	Thr	Cys
		115					120					125			
Ile	Ile	Asn	Gly	Val	Cys	Trp	Thr	Val	Tyr	His	Gly	Ala	Gly	Thr	Arg
	130					135					140				
Thr	Ile	Ala	Ser	Pro	Lys	Gly	Pro	Val	Ile	Gln	Met	Tyr	Thr	Asn	Val
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Asp	Gln	Asp	Leu	Val	Gly	Trp	Pro	Ala	Ser	Gln	Gly	Thr	Arg	Ser	Leu
				165					170					175	
Thr	Pro	Cys	Thr	Cys	Gly	Ser	Ser	Asp	Leu	Tyr	Leu	Val	Thr	Arg	His
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Ala	Asp	Val	Ile	Pro	Val	Arg	Arg	Arg	Gly	Asp	Ser	Arg	Gly	Ser	Leu
		195					200					205			
Leu	Ser	Pro	Arg	Pro	Ile	Ser	Tyr	Leu	Lys	Gly	Ser	Ser	Gly	Gly	Pro
		210				215					220				
Leu	Leu	Cys	Pro	Ala	Gly	His	Ala	Val	Gly	Ile	Phe	Arg	Ala	Ala	Val
225					230					235					240
Cys	Thr	Arg	Gly	Val	Ala	Lys	Ala	Val	Asp	Phe	Ile	Pro	Val	Glu	Asn
				245					250					255	
Leu	Glu	Thr	Thr	Met	Arg	Ser	Pro	Val	Phe	Thr	Asp	Asn	Ser	Ser	Pro
			260					265					270		
Pro	Val	Val	Pro	Gln	Ser	Phe	Gln	Val	Ala	His	Leu	His	Ala	Pro	Thr
		275					280					285			
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<212> DNA

<213> Hepatitis C virus

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atcacgtggg	gggcagatac	cgccgcgtgc	ggtgacatca	tcaacggctt	gcctgtttcc	180
gcccgcaggg	gccgggagat	actgctcggg	ccagccgatg	gaatggtctc	caagggttgg	240
aggttgctgg	cgcccatcac	ggcgtagcc	cagcagacaa	ggggcctcct	agggtgcata	300

atcaccagcc	taactggccg	ggacaaaaac	caagtggagg	gtgaggtcca	gatttgtgtca	360
actgctgccc	aaaccttcct	ggcaacgtgc	atcatcaatg	gggtgtgctg	gactgtctac	420
cacggggccg	gaacgaggac	catcgcgta	cccaagggtc	ctgtcatcca	gatgtatacc	480
aatgtagacc	aagaccttgt	gggctggccc	gcttcgcaag	gtacccgctc	attgacaccc	540
tgcacttgcg	gctcctcgga	cctttacctg	gtcacgaggc	acgccgatgt	cattcccgtg	600
cgccggcggg	gtgatagcag	gggcagcctg	ctgtcgcccc	ggcccatttc	ctacttgaaa	660
ggctcctcgg	ggggtcgcgt	gttgtgcccc	gcggggcacg	ccgtgggcat	atthagggcc	720
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acaaccatga	ggcccccggt	gttcacggat	aactcctctc	caccagtagt	gccccagagc	840
ttccagggtg	ctcacctcca	tgctcccaca	ggcagcggca	aaagcaccaa	ggccccggct	900
gcatatgcag	ctcagggcta	taagggtgcta	gtactcaacc	cctctgttgc	tgcaacactg	960
ggcttttggtg	cttacatgtc	caagggtcat	gggatcgatc	ctaacatcag	gaccgggggtg	1020
agaacaatta	ccactggcag	ccccatcacg	tactccacct	acggcaagtt	ccttgccgac	1080
ggcgggtgct	cggggggcgc	ttatgacata	ataatttggtg	acgagtgcca	ctccacggat	1140
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ctggttgtgc	tgcgcccgcc	cacccctccg	ggctccgtca	ctgtgcccc	tcccaacatc	1260
gaggaggttg	ctctgtccac	caccggagag	atcccttttt	acggcaaggc	tatccccctc	1320
gaagtaatca	agggggggag	acatctcatc	ttctgtcatt	caaagaagaa	gtgcgacgaa	1380
ctcgccgcaa	agctggtcgc	attgggcata	aatgccgtgg	cctactaccg	cggtcttgac	1440
gtgtccgtca	tcccgaccag	cggcgatggt	gtcgtcgtgg	caaccgatgc	cctcatgacc	1500
ggctataccg	gcgacttcga	ctcgggtgata	gactgcaata	cgtgtgtcac	ccagacagtc	1560
gatttcagcc	ttgaccctac	cttcaccatt	gagacaatca	cgctccccca	agatgctgtc	1620
tcccgcactc	aacgtcgggg	caggactggc	aggggggaagc	caggcatcta	cagatttgtg	1680
gcaacggggg	agcgccctcc	cggcatgttc	gactcgtccg	tcctctgtga	gtgctatgac	1740
gcaggctgtg	cttggtatga	gctcacgccc	gccgagacta	cagttaggct	acgagcgtac	1800
atgaacaccc	cgggggcttcc	cgtgtgccag	gaccatcttg	aattttggga	gggcgtcttt	1860
acaggcctca	ctcatataga	tgcccacttt	ctatcccaga	caaagcagag	tgggggagaac	1920
cttccttacc	tggtagcgta	ccaagccacc	gtgtgcgcta	gggctcaagc	ccctccccca	1980
tcggtgggacc	agatgtggaa	gtgtttgatt	cgcctcaagc	ccaccctcca	tggggccaaca	2040
cccctgctat	acagactggg	cgct				2064

<210> 70

<211> 686

<212> PRT

<213> Hepatitis C virus

<400> 70

Gly	Thr	Tyr	Val	Tyr	Asn	His	Leu	Thr	Pro	Leu	Arg	Asp	Trp	Ala	His
1				5					10					15	
Asn	Gly	Leu	Arg	Asp	Leu	Ala	Val	Ala	Val	Glu	Pro	Val	Val	Phe	Ser
			20					25					30		
Gln	Met	Glu	Thr	Lys	Leu	Ile	Thr	Trp	Gly	Ala	Asp	Thr	Ala	Ala	Cys
		35					40					45			
Gly	Asp	Ile	Ile	Asn	Gly	Leu	Pro	Val	Ser	Ala	Arg	Arg	Gly	Arg	Glu
	50					55					60				
Ile	Leu	Leu	Gly	Pro	Ala	Asp	Gly	Met	Val	Ser	Lys	Gly	Trp	Arg	Leu
65					70				75					80	
Leu	Ala	Pro	Ile	Thr	Ala	Tyr	Ala	Gln	Gln	Thr	Arg	Gly	Leu	Leu	Gly
				85				90						95	
Cys	Ile	Ile	Thr	Ser	Leu	Thr	Gly	Arg	Asp	Lys	Asn	Gln	Val	Glu	Gly
			100				105						110		
Glu	Val	Gln	Ile	Val	Ser	Thr	Ala	Ala	Gln	Thr	Phe	Leu	Ala	Thr	Cys

530		535		540
Gly Arg Thr Gly Arg Gly Lys Pro Gly Ile Tyr Arg Phe Val Ala Pro				
545		550		555
Gly Glu Arg Pro Pro Gly Met Phe Asp Ser Ser Val Leu Cys Glu Cys				
	565		570	575
Tyr Asp Ala Gly Cys Ala Trp Tyr Glu Leu Thr Pro Ala Glu Thr Thr				
	580		585	590
Val Arg Leu Arg Ala Tyr Met Asn Thr Pro Gly Leu Pro Val Cys Gln				
	595		600	605
Asp His Leu Glu Phe Trp Glu Gly Val Phe Thr Gly Leu Thr His Ile				
	610		615	620
Asp Ala His Phe Leu Ser Gln Thr Lys Gln Ser Gly Glu Asn Leu Pro				
	625		630	635
Tyr Leu Val Ala Tyr Gln Ala Thr Val Cys Ala Arg Ala Gln Ala Pro				
	645		650	655
Pro Pro Ser Trp Asp Gln Met Trp Lys Cys Leu Ile Arg Leu Lys Pro				
	660		665	670
Thr Leu His Gly Pro Thr Pro Leu Leu Tyr Arg Leu Gly Ala				
	675		680	685

<210> 71
 <211> 368
 <212> DNA
 <213> Hepatitis C virus

<400> 71	
aattcggaacc accaagtggagggtgaggtc cagatttgtgt caactgctgc ccaaacccttc	60
ctggcaacgt gcatcaatgg ggtgtgctgg actgtctacc acggggccgg aacgaggacc	120
atcgcgctcac ccaaggggtcc tgtcatccag atgtatacca atgtagacca agaccttggtg	180
ggctggccccg cttcgcaagg taccgctca ttgacacct gcacttgcg ctcctcggac	240
ctttacctgg tcacgaggca cgccgatgtc attcccgtgc gccggcgagg tgatagcagg	300
ggcagcctcg tgtcgccccg gccatttcc tacttgaaag gtcctcggg gggtcgctg	360
ccgaattc	368

<210> 72
 <211> 122
 <212> PRT
 <213> Hepatitis C virus

<400> 72	
Asn Ser Glu Asn Gln Val Glu Gly Glu Val Gln Ile Val Ser Thr Ala	
1 5 10 15	
Ala Gln Thr Phe Leu Ala Thr Cys Ile Asn Gly Val Cys Trp Thr Val	
20 25 30	
Tyr His Gly Ala Gly Thr Arg Thr Ile Ala Ser Pro Lys Gly Pro Val	
35 40 45	
Ile Gln Met Tyr Thr Asn Val Asp Gln Asp Leu Val Gly Trp Pro Ala	
50 55 60	
Ser Gln Gly Thr Arg Ser Leu Thr Pro Cys Thr Cys Gly Ser Ser Asp	
65 70 75 80	
Leu Tyr Leu Val Thr Arg His Ala Asp Val Ile Pro Val Arg Arg Arg	
85 90 95	

Gly Asp Ser Arg Gly Ser Leu Val Ser Pro Arg Pro Ile Ser Tyr Leu
100 105 110
Lys Gly Ser Ser Gly Gly Pro Leu Pro Asn
115 120

<210> 73
<211> 208
<212> DNA
<213> Hepatitis C virus

<400> 73
gaattcgggg gcctgctgtt gtgccccgcg gcagccgtgg gcatatttag ggccgcggtg 60
tgcacccgtg gagggtgtaa ggcggtggac tttatccctg tggagaacct agagacaacc 120
atgaggtccc cgggtgttcac ggataactcc tctccaccag tagtgcccca gagcttccag 180
gtggtccacc tccatgctcc ccgaattc 208

<210> 74
<211> 69
<212> PRT
<213> Hepatitis C virus

<400> 74
Glu Phe Gly Gly Leu Leu Leu Cys Pro Ala Ala Val Gly Ile Phe
1 5 10 15
Arg Ala Ala Val Cys Thr Arg Gly Val Ala Lys Ala Val Asp Phe Ile
20 25 30
Pro Val Glu Asn Leu Glu Thr Thr Met Arg Ser Pro Val Phe Thr Asp
35 40 45
Asn Ser Ser Pro Pro Val Val Pro Gln Ser Phe Gln Val Ala His Leu
50 55 60
His Ala Pro Arg Ile
65

<210> 75
<211> 281
<212> DNA
<213> Hepatitis C virus

<400> 75
ccctgcactt gcggctcctc ggacctttac ctggtcacga ggcacgccga tgtcattccc 60
gtgcgcgggc ggggtgatag caggggcagc ctgctgtcgc cccggcccat ttcctacttg 120
aaaggctcct cgggggggtcc gctgttgtgc cccgcggggc acgccgtggg catatttagg 180
gccgcggtgt gcacccgtgg agtggctaag gcggtggact ttatccctgt ggagaaccta 240
gagacaacca tgaggtcccc ggtgttcacg gataactcct c 281

<210> 76
<211> 93
<212> PRT
<213> Hepatitis C virus

<400> 76
Pro Cys Thr Cys Gly Ser Ser Asp Leu Tyr Leu Val Thr Arg His Ala

1				5					10					15			
Asp	Val	Ile	Pro	Val	Arg	Arg	Arg	Gly	Asp	Ser	Arg	Gly	Ser	Leu	Leu		
			20					25					30				
Ser	Pro	Arg	Pro	Ile	Ser	Tyr	Leu	Lys	Gly	Ser	Ser	Gly	Gly	Pro	Leu		
		35					40					45					
Leu	Cys	Pro	Ala	Gly	His	Ala	Val	Gly	Ile	Phe	Arg	Ala	Ala	Val	Cys		
	50					55					60						
Thr	Arg	Gly	Val	Ala	Lys	Ala	Val	Asp	Phe	Ile	Pro	Val	Glu	Asn	Leu		
65					70					75					80		
Glu	Thr	Thr	Met	Arg	Ser	Pro	Val	Phe	Thr	Asp	Asn	Ser					
			85					90									

<210> 77
 <211> 416
 <212> DNA
 <213> Hepatitis C virus

<400> 77	
attcgggggca cctatgttta taaccatctc actcctcttc gggactgggc gcacaacggc	60
ttgcgagatc tggccgtggc tgtagagcca gtcgtcttct cccaaatgga gaccaagctc	120
atcacgtggg gggcagatac cgccgctgac ggtgacatca tcaacggctt gcctgtttcc	180
gcccgcaggg gccgggagat actgctcggg ccagccgatg gaatgggtctc caaggggttg	240
aggttgctgg cgcccatcac ggcgtacgcc cagcagacaa ggggcctcct aggggtgcata	300
atcaccagcc taactggccg ggacaaaaac caagtggagg gtgaggtcca gattgtgtca	360
actgctgccc aaaccttcct ggcaacgtgc atcaatgggg tgtgctggcc gaattc	416

<210> 78
 <211> 138
 <212> PRT
 <213> Hepatitis C virus

<400> 78	
Ile Arg Gly Thr Tyr Val Tyr Asn His Leu Thr Pro Leu Arg Asp Trp	
1	5 10 15
Ala His Asn Gly Leu Arg Asp Leu Ala Val Ala Val Glu Pro Val Val	
	20 25 30
Phe Ser Gln Met Glu Thr Lys Leu Ile Thr Trp Gly Ala Asp Thr Ala	
	35 40 45
Ala Cys Gly Asp Ile Ile Asn Gly Leu Pro Val Ser Ala Arg Arg Gly	
	50 55 60
Arg Glu Ile Leu Leu Gly Pro Ala Asp Gly Met Val Ser Lys Gly Trp	
65	70 75 80
Arg Leu Leu Ala Pro Ile Thr Ala Tyr Ala Gln Gln Thr Arg Gly Leu	
	85 90 95
Leu Gly Cys Ile Ile Thr Ser Leu Thr Gly Arg Asp Lys Asn Gln Val	
	100 105 110
Glu Gly Glu Val Gln Ile Val Ser Thr Ala Ala Gln Thr Phe Leu Ala	
	115 120 125
Thr Cys Ile Asn Gly Val Cys Trp Pro Asn	
	130 135

<210> 79

<211> 308
 <212> DNA
 <213> Hepatitis C virus

<400> 79
 gaattcgggt ccgtcatccc gaccageggc gatgttgctg tcgtcgcaac cgatgccctc 60
 atgaccggct ataccggcga ctctgactcg gtgatagact gcaatacgtg tgtcacccag 120
 acagtcgatt tcagccttga ccctaccttc accattgaga caatcacgct cccccaagat 180
 gctgtctccc gcactcaacg tcggggcagg actggcaggg ggaagccagg catctacaga 240
 tttgtggcac cgggggagcg cccctccggc atgttcgact cgtccgtcct ctgtgagtgc 300
 ccgaattc 308

<210> 80
 <211> 102
 <212> PRT
 <213> Hepatitis C virus

<400> 80
 Glu Phe Gly Ser Val Ile Pro Thr Ser Gly Asp Val Val Val Val Ala
 1 5 10 15
 Thr Asp Ala Leu Met Thr Gly Tyr Thr Gly Asp Phe Asp Ser Val Ile
 20 25 30
 Asp Cys Asn Thr Cys Val Thr Gln Thr Val Asp Phe Ser Leu Asp Pro
 35 40 45
 Thr Phe Thr Ile Glu Thr Ile Thr Leu Pro Gln Asp Ala Val Ser Arg
 50 55 60
 Thr Gln Arg Arg Gly Arg Thr Gly Arg Gly Lys Pro Gly Ile Tyr Arg
 65 70 75 80
 Phe Val Ala Pro Gly Glu Arg Pro Ser Gly Met Phe Asp Ser Ser Val
 85 90 95
 Leu Cys Glu Cys Pro Asn
 100

<210> 81
 <211> 495
 <212> DNA
 <213> Hepatitis C virus

<400> 81
 attcgggtcca ttgagacaat cacgctcccc caggatgctg tctcccgcac tcaacgtcgg 60
 ggcaggactg gcagggggaa gccaggcatc tacagatttg tggcaccggg ggagcgcccc 120
 tccggcatgt tcgactcgtc cgtcctctgt gaggtgctatg acgcaggctg tgcttggtat 180
 gagctcacgc ccgccgagac tacagttagg ctacgagcgt acatgaacac cccggggctt 240
 cccgtgtgcc aggaccatct tgaattttgg gagggcgtct ttacaggcct cactcatata 300
 gatgccact ttctatccca gacaaagcag agtggggaga accttcctta cctggttagcg 360
 taccaagcca ccgtgtgcgc taggggtcaa gccctcccc catcgtggga ccagatgtgg 420
 aagtgtttga ttgcctcaa gccaccctc catggggcaa caccctgct atacagactg 480
 ggcgctgccg aattc 495

<210> 82
 <211> 165
 <212> PRT

<213> Hepatitis C virus

<400> 82

Ile Arg Ser Ile Glu Thr Ile Thr Leu Pro Gln Asp Ala Val Ser Arg
1 5 10 15
Thr Gln Arg Arg Gly Arg Thr Gly Arg Gly Lys Pro Gly Ile Tyr Arg
20 25 30
Phe Val Ala Pro Gly Glu Arg Pro Ser Gly Met Phe Asp Ser Ser Val
35 40 45
Leu Cys Glu Cys Tyr Asp Ala Gly Cys Ala Trp Tyr Glu Leu Thr Pro
50 55 60
Ala Glu Thr Thr Val Arg Leu Arg Ala Tyr Met Asn Thr Pro Gly Leu
65 70 75 80
Pro Val Cys Gln Asp His Leu Glu Phe Trp Glu Gly Val Phe Thr Gly
85 90 95
Leu Thr His Ile Asp Ala His Phe Leu Ser Gln Thr Lys Gln Ser Gly
100 105 110
Glu Asn Leu Pro Tyr Leu Val Ala Tyr Gln Ala Thr Val Cys Ala Arg
115 120 125
Ala Gln Ala Pro Pro Pro Ser Trp Asp Gln Met Trp Lys Cys Leu Ile
130 135 140
Arg Leu Lys Pro Thr Leu His Gly Pro Thr Pro Leu Leu Tyr Arg Leu
145 150 155 160
Gly Ala Ala Glu Phe
165

<210> 83

<211> 816

<212> DNA

<213> Hepatitis C virus

<400> 83

gaattcgggg cggtggactt tatccctgtg gagaacctag agacaaccat gaggtccccg 60
gtgttcacgg ataactcctc tccaccagta gtgccccaga gcttccaggt gggtcacctc 120
catgctccca caggcagcgg caaaagcacc aaggtcccgg ctgcatatgc agctcagggc 180
tataaggtgc tagtactcaa cccctctgtt gctgcaacac tgggctttgg tgcttacatg 240
tccaaggctc atgggatcga tcctaacatc aggaccgggg tgagaacaat taccactggc 300
agcccatca cgtactccac ctacggcaag ttccttgccg acggcgggtg ctcggggggc 360
gcttatgaca taataatttg tgacgagtgc cactccacgg atgccacatc catcttgggc 420
attggcactg tccttgacca agcagagact gcggggggcga gactggttgt gctcgccacc 480
gccaccctc cgggctccgt cactgtgccc catcccaaca tcgaggaggt tgctctgtcc 540
accaccggag agatcccttt ttacggcaag gctatcccc tcgaagtaat caaggggggg 600
agacatctca tcttctgtca ttcaaagaag aagtgcgacg aactcgccgc aaagctggtc 660
gcattgggca tcaatgccgt ggctactac cgcggtcttg acgtgtccgt catcccgacc 720
agcggcgatg ttgtcgtcgt ggcaaccgat gccctcatga ccggctatac cggcgacttc 780
gactcgggtga tagactgcaa tacgtgtgcc gaattc 816

<210> 84

<211> 272

<212> PRT

<213> Hepatitis C virus

<400> 84

Glu	Phe	Gly	Ala	Val	Asp	Phe	Ile	Pro	Val	Glu	Asn	Leu	Glu	Thr	Thr
1				5					10					15	
Met	Arg	Ser	Pro	Val	Phe	Thr	Asp	Asn	Ser	Ser	Pro	Pro	Val	Val	Pro
			20					25					30		
Gln	Ser	Phe	Gln	Val	Ala	His	Leu	His	Ala	Pro	Thr	Gly	Ser	Gly	Lys
		35					40					45			
Ser	Thr	Lys	Val	Pro	Ala	Ala	Tyr	Ala	Ala	Gln	Gly	Tyr	Lys	Val	Leu
	50					55					60				
Val	Leu	Asn	Pro	Ser	Val	Ala	Ala	Thr	Leu	Gly	Phe	Gly	Ala	Tyr	Met
65					70					75					80
Ser	Lys	Ala	His	Gly	Ile	Asp	Pro	Asn	Ile	Arg	Thr	Gly	Val	Arg	Thr
				85					90					95	
Ile	Thr	Thr	Gly	Ser	Pro	Ile	Thr	Tyr	Ser	Thr	Tyr	Gly	Lys	Phe	Leu
			100					105					110		
Ala	Asp	Gly	Gly	Cys	Ser	Gly	Gly	Ala	Tyr	Asp	Ile	Ile	Ile	Cys	Asp
		115					120					125			
Glu	Cys	His	Ser	Thr	Asp	Ala	Thr	Ser	Ile	Leu	Gly	Ile	Gly	Thr	Val
	130					135					140				
Leu	Asp	Gln	Ala	Glu	Thr	Ala	Gly	Ala	Arg	Leu	Val	Val	Leu	Ala	Thr
145					150					155					160
Ala	Thr	Pro	Pro	Gly	Ser	Val	Thr	Val	Pro	His	Pro	Asn	Ile	Glu	Glu
				165					170					175	
Val	Ala	Leu	Ser	Thr	Thr	Gly	Glu	Ile	Pro	Phe	Tyr	Gly	Lys	Ala	Ile
			180					185					190		
Pro	Leu	Glu	Val	Ile	Lys	Gly	Gly	Arg	His	Leu	Ile	Phe	Cys	His	Ser
		195					200					205			
Lys	Lys	Lys	Cys	Asp	Glu	Leu	Ala	Ala	Lys	Leu	Val	Ala	Leu	Gly	Ile
	210					215					220				
Asn	Ala	Val	Ala	Tyr	Tyr	Arg	Gly	Leu	Asp	Val	Ser	Val	Ile	Pro	Thr
225					230					235					240
Ser	Gly	Asp	Val	Val	Val	Val	Ala	Thr	Asp	Ala	Leu	Met	Thr	Gly	Tyr
			245						250					255	
Thr	Gly	Asp	Phe	Asp	Ser	Val	Ile	Asp	Cys	Asn	Thr	Cys	Ala	Glu	Phe
			260					265					270		

<210> 85

<211> 2523

<212> DNA

<213> Artificial Sequence

<220>

<223> vector cf1SODp600

<400> 85

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gaaggcctgc	atggattcca	tgttcattgag	tttgagagata	atacagcagg	ctgtaccagt	180
ccaggctctc	actttaatcc	tctatccaga	aaacacgggtg	ggccaaagga	tgaagagagg	240
catgttgagg	acttgggcaa	tgtgactgct	gacaaagatg	gtgtggccga	tgtgtctatt	300
gaagattctg	tgatctcact	ctcaggagac	cattgcacat	ttggccgcac	actggtggtc	360
catgaaaaag	cagatgactt	gggcaaaggt	ggaaatgaag	aaagtacaaa	gacaggaaac	420

gctggaagtc	gtttggcttg	tggtgtaatt	gggatccgaa	ttcgggggcac	ctatgtttat	480
aaccatctca	ctcctcttcg	ggactgggcg	cacaacggct	tgcgagatct	ggccgtggct	540
gtagagccag	tcgctcttct	ccaaatggag	accaagctca	tcacgtgggg	ggcagatacc	600
gccgcgtgcg	gtgacatcat	caacggcttg	cctgtttccg	cccgagggg	ccgggagata	660
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tcggtgatag	actgcaatac	gtgtgtcacc	cagacagtcg	atttcagcct	tgaccctacc	2040
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gtgtgccagg	accatcttga	attttgggag	ggcgtcttta	caggcctcac	tcatatagat	2340
gccacttttc	tatcccagac	aaagcagagt	ggggagaacc	ttccttacct	ggtagcgtac	2400
caagccaccg	tgtgcgctag	ggctcaagcc	cctcccccat	cgtgggacca	gatgtggaag	2460
tgtttgattc	gcctcaagcc	cacctccat	gggccaacac	ccctgctata	cagactgggc	2520
gct						2523

<210> 86
 <211> 841
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> vector cflSODp600

<400> 86
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 Gly Ile Ile Asn Phe Glu Gln Lys Glu Ser Asn Gly Pro Val Lys Val
 20 25 30
 Trp Gly Ser Ile Lys Gly Leu Thr Glu Gly Leu His Gly Phe His Val
 35 40 45

His	Glu	Phe	Gly	Asp	Asn	Thr	Ala	Gly	Cys	Thr	Ser	Pro	Gly	Pro	His
50						55					60				
Phe	Asn	Pro	Leu	Ser	Arg	Lys	His	Gly	Gly	Pro	Lys	Asp	Glu	Glu	Arg
65					70					75					80
His	Val	Gly	Asp	Leu	Gly	Asn	Val	Thr	Ala	Asp	Lys	Asp	Gly	Val	Ala
				85					90					95	
Asp	Val	Ser	Ile	Glu	Asp	Ser	Val	Ile	Ser	Leu	Ser	Gly	Asp	His	Cys
			100					105					110		
Ile	Ile	Gly	Arg	Thr	Leu	Val	Val	His	Glu	Lys	Ala	Asp	Asp	Leu	Gly
		115					120					125			
Lys	Gly	Gly	Asn	Glu	Glu	Ser	Thr	Lys	Thr	Gly	Asn	Ala	Gly	Ser	Arg
	130					135					140				
Leu	Ala	Cys	Gly	Val	Ile	Gly	Ile	Arg	Ile	Arg	Gly	Thr	Tyr	Val	Tyr
145					150					155					160
Asn	His	Leu	Thr	Pro	Leu	Arg	Asp	Trp	Ala	His	Asn	Gly	Leu	Arg	Asp
				165					170					175	
Leu	Ala	Val	Ala	Val	Glu	Pro	Val	Val	Phe	Ser	Gln	Met	Glu	Thr	Lys
			180					185					190		
Leu	Ile	Thr	Trp	Gly	Ala	Asp	Thr	Ala	Ala	Cys	Gly	Asp	Ile	Ile	Asn
		195				200					205				
Gly	Leu	Pro	Val	Ser	Ala	Arg	Arg	Gly	Arg	Glu	Ile	Leu	Leu	Gly	Pro
	210					215					220				
Ala	Asp	Gly	Met	Val	Ser	Lys	Gly	Trp	Arg	Leu	Leu	Ala	Pro	Ile	Thr
225					230					235					240
Ala	Tyr	Ala	Gln	Gln	Thr	Arg	Gly	Leu	Leu	Gly	Cys	Ile	Ile	Thr	Ser
			245					250						255	
Leu	Thr	Gly	Arg	Asp	Lys	Asn	Gln	Val	Glu	Gly	Glu	Val	Gln	Ile	Val
			260					265					270		
Ser	Thr	Ala	Ala	Gln	Thr	Phe	Leu	Ala	Thr	Cys	Ile	Ile	Asn	Gly	Val
		275					280					285			
Cys	Trp	Thr	Val	Tyr	His	Gly	Ala	Gly	Thr	Arg	Thr	Ile	Ala	Ser	Pro
	290					295					300				
Lys	Gly	Pro	Val	Ile	Gln	Met	Tyr	Thr	Asn	Val	Asp	Gln	Asp	Leu	Val
305					310					315					320
Gly	Trp	Pro	Ala	Ser	Gln	Gly	Thr	Arg	Ser	Leu	Thr	Pro	Cys	Thr	Cys
			325					330						335	
Gly	Ser	Ser	Asp	Leu	Tyr	Leu	Val	Thr	Arg	His	Ala	Asp	Val	Ile	Pro
			340					345					350		
Val	Arg	Arg	Arg	Gly	Asp	Ser	Arg	Gly	Ser	Leu	Leu	Ser	Pro	Arg	Pro
			355				360					365			
Ile	Ser	Tyr	Leu	Lys	Gly	Ser	Ser	Gly	Gly	Pro	Leu	Leu	Cys	Pro	Ala
	370					375					380				
Gly	His	Ala	Val	Gly	Ile	Phe	Arg	Ala	Ala	Val	Cys	Thr	Arg	Gly	Val
385					390					395					400
Ala	Lys	Ala	Val	Asp	Phe	Ile	Pro	Val	Glu	Asn	Leu	Glu	Thr	Thr	Met
			405						410					415	
Arg	Ser	Pro	Val	Phe	Thr	Asp	Asn	Ser	Ser	Pro	Pro	Val	Val	Pro	Gln
			420					425					430		
Ser	Phe	Gln	Val	Ala	His	Leu	His	Ala	Pro	Thr	Gly	Ser	Gly	Lys	Ser
		435					440					445			
Thr	Lys	Val	Pro	Ala	Ala	Tyr	Ala	Ala	Gln	Gly	Tyr	Lys	Val	Leu	Val
	450					455					460				

Leu	Asn	Pro	Ser	Val	Ala	Ala	Thr	Leu	Gly	Phe	Gly	Ala	Tyr	Met	Ser	465	470	475	480
Lys	Ala	His	Gly	Ile	Asp	Pro	Asn	Ile	Arg	Thr	Gly	Val	Arg	Thr	Ile	485	490	495	
Thr	Thr	Gly	Ser	Pro	Ile	Thr	Tyr	Ser	Thr	Tyr	Gly	Lys	Phe	Leu	Ala	500	505	510	
Asp	Gly	Gly	Cys	Ser	Gly	Gly	Ala	Tyr	Asp	Ile	Ile	Ile	Cys	Asp	Glu	515	520	525	
Cys	His	Ser	Thr	Asp	Ala	Thr	Ser	Ile	Leu	Gly	Ile	Gly	Thr	Val	Leu	530	535	540	
Asp	Gln	Ala	Glu	Thr	Ala	Gly	Ala	Arg	Leu	Val	Val	Leu	Ala	Thr	Ala	545	550	555	560
Thr	Pro	Pro	Gly	Ser	Val	Thr	Val	Pro	His	Pro	Asn	Ile	Glu	Glu	Val	565	570	575	
Ala	Leu	Ser	Thr	Thr	Gly	Glu	Ile	Pro	Phe	Tyr	Gly	Lys	Ala	Ile	Pro	580	585	590	
Leu	Glu	Val	Ile	Lys	Gly	Gly	Arg	His	Leu	Ile	Phe	Cys	His	Ser	Lys	595	600	605	
Lys	Lys	Cys	Asp	Glu	Leu	Ala	Ala	Lys	Leu	Val	Ala	Leu	Gly	Ile	Asn	610	615	620	
Ala	Val	Ala	Tyr	Tyr	Arg	Gly	Leu	Asp	Val	Ser	Val	Ile	Pro	Thr	Ser	625	630	635	640
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Gly	Asp	Phe	Asp	Ser	Val	Ile	Asp	Cys	Asn	Thr	Cys	Val	Thr	Gln	Thr	660	665	670	
Val	Asp	Phe	Ser	Leu	Asp	Pro	Thr	Phe	Thr	Ile	Glu	Thr	Ile	Thr	Leu	675	680	685	
Pro	Gln	Asp	Ala	Val	Ser	Arg	Thr	Gln	Arg	Arg	Gly	Arg	Thr	Gly	Arg	690	695	700	
Gly	Lys	Pro	Gly	Ile	Tyr	Arg	Phe	Val	Ala	Pro	Gly	Glu	Arg	Pro	Pro	705	710	715	720
Gly	Met	Phe	Asp	Ser	Ser	Val	Leu	Cys	Glu	Cys	Tyr	Asp	Ala	Gly	Cys	725	730	735	
Ala	Trp	Tyr	Glu	Leu	Thr	Pro	Ala	Glu	Thr	Thr	Val	Arg	Leu	Arg	Ala	740	745	750	
Tyr	Met	Asn	Thr	Pro	Gly	Leu	Pro	Val	Cys	Gln	Asp	His	Leu	Glu	Phe	755	760	765	
Trp	Glu	Gly	Val	Phe	Thr	Gly	Leu	Thr	His	Ile	Asp	Ala	His	Phe	Leu	770	775	780	
Ser	Gln	Thr	Lys	Gln	Ser	Gly	Glu	Asn	Leu	Pro	Tyr	Leu	Val	Ala	Tyr	785	790	795	800
Gln	Ala	Thr	Val	Cys	Ala	Arg	Ala	Gln	Ala	Pro	Pro	Pro	Ser	Trp	Asp	805	810	815	
Gln	Met	Trp	Lys	Cys	Leu	Ile	Arg	Leu	Lys	Pro	Thr	Leu	His	Gly	Pro	820	825	830	
Thr	Pro	Leu	Leu	Tyr	Arg	Leu	Gly	Ala								835	840		

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36

*B20
Concluded*